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JAMES M SMITH
HAMILTON BROOK SMITH AND REYNOLDS
TWO MILITIA DRIVE
LEXINGTON MA 02173

EXAMINER	
NOORI, M	
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Please find below a communication from the EXAMINER in charge of this application.

Commissioner of Patents

DETAILED ACTION

Election Acknowledgment

1. Acknowledgment is made of the election of Group I, claims 1-14, and 19-24. The non-elected claims, 15-18 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b). Applicants are reminded that the non elected claims, should be canceled during the prosecution of this application.

The argument regarding the inadequacy of the restriction is not persuasive. Examiner believes that the search required for the scope of the claims of Group II, which is clearly toward memory read/write arm servo control system, has nothing to do with the search required for a position sensor with the optical components. Although claims of Group II, utilize an optical position sensor, they are categorized as a combination (AB_{br}), in opposed to claims of Group I which recite the specifics of the optical sensor, and is categorized as a subcombination (B_{sp}). Since a proper combination/subcombination is restrictable, the restriction is indeed appropriate. See the detail discussion in the pervious Office Action.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-4 12-13, 19-21, and 24 are rejected under 35 U.S.C. 102(b) as being anticipated by Gates et al.

Regarding claims 1, 12-13, 19, Gates et al., disclose an optical apparatus for determining relative positioning of two members with features of the claimed invention including: a source of coherent illumination which illuminates a surface (element Z2) with first and second input beams (elements 5a), a fringe detector (element 14), and optics to direct light in various directions (elements such as 9).

Regarding claims 2, 20, Gates et al., show that detected scattered light can be backscattered.

Regarding claim 3, and 21, Gates et al., show that the input beams illuminate a common spot of the surface.

Regarding claim 4, Gates et al., suggest the provision of the input beams to be coincident with scattered light (col. 4, lines 29-35).

Regarding claim 24, Gates et al's relative motion of the surfaces can be a relative rotational motion.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 5-11, 14, 22-23, are rejected under 35 U.S.C. 103(a) as being unpatentable over Gates et al., in view of Monchalin.

Regarding claims 5-7, 22, Gates et al., disclose an optical apparatus for determining relative positioning of two members teaching or suggesting features of the claimed invention. Gates et al., do not specifically or directly recite the polarization of the input beams. However, such provision is notoriously known in the art. Monchalin, for example is presented to show such provision. Monchalin discloses a broadband optical detection of transient motion from a scattering surface using a polarized beam splitter (element 152). It would have been obvious to one of ordinary skill in the art to modify Gates et al., by providing a polarized beam splitter as taught by Monchalin. Because a polarizing beam splitter has the property of transmitting nearly 100% of the light in the plane of incident and provide for more accurate optical effect (see col. 6, lines 5-19).

Regarding claim 8-9, 11, 14, and 23, Gates et al.'s detector provides sufficient information to define the position of the related surfaces. Gates et al., do not elaborate on the structure of the detector, it would have been obvious to one of ordinary skill in the art to modify gates to use a sensor array, because such arrangement fails to provide for an unobvious advantage over other kinds of detectors and is merely a matter of alternative design expedient suggested by convenience or intended use.

Regarding claim 10, Gates et al., suggest the provision of the input beams to be coincident with scattered light (col. 4, lines 29-35).

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Max H. Noori whose telephone number is (703) 308-5248. The examiner can normally be reached on Monday-Friday from 8:00 AM to 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rich Chilcot, can be reached on (703) 305-4716. The fax number for this group is (703) 308-7382.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 305-4900.

MHN
October 9, 1997


MAX H. NOORI
PATENT EXAMINER
GROUP 2200